British West Indies Central Sugar Cane Breeding Station, Barbados.

IMPERIAL MYCOLOGICAL
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INSTITUTE

EIGHTH ANNUAL REPORT

Ending September 30th, 1941.

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1. FOREWORD.

Advisory Committee

The tenth meeting of the Advisory Committee was held in Barbados during September, 1941. The Committee considered the progress made in the work of the Station and also visited fields and plots of the newer and more promising seedlings. The Committee expressed its satisfaction at the high standard of work which was being maintained.

Technical

2. It may be noted that four new seedlings—B.3439, B.35187, B.35245 and B.37161 are being recommended in Barbados for commercial planting in 1941 to the exclusion of the existing standard varieties—B.H.10(12), B.726, B.3013, B.2935 and B.3127. The seedlings B.35187, B.35245 and B.37161 are all nobilisations. Breeding work is now exclusively directed to nobilisation.

3. The seedlings B.3439 and B.34104 have done very well in trials in all contributing Colonies and undoubtedly they will be planted on a large scale in the sugar growing areas of these Colonies in the future. Seedlings of the B.35' and later series are only now being tested in the contributing Colonies but from the results of trials carried out in Barbados it is considered that B.35187, B.35245 and B.37161 will also become commercial varieties elsewhere.

4. New breeding material has been imported through the Plant Quarantine Station, Trinidad and further amounts are expected in the near future. This material was obtained from the U.S. Department of Agriculture and comprises wild sugar cane species not yet used by the Station.

5. During 1940 twenty-nine, and in 1941 twenty-one seedlings were sent to the Plant Quarantine Station, Trinidad. These are for quarantine prior to distribution to the contributing Colonies.

Visits

6. During October, 1940, the Geneticist visited Jamaica. A summary of his visit appears in Section VI of this Report.

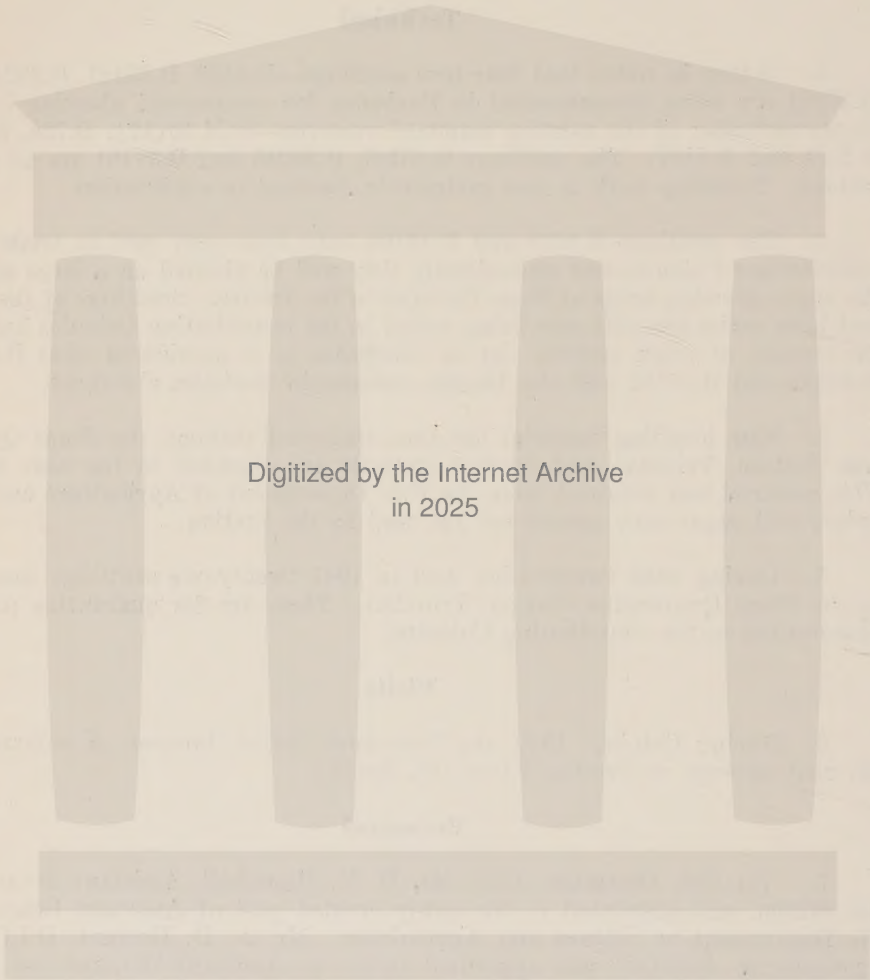
Personnel

7. On 15th December, 1940, Mr. D. M. Hanschell, Assistant Botanist of the Station was appointed to the newly created post of Assistant Botanist in the Department of Science and Agriculture. Mr. A. D. Herbert, D.I.C.T.A., Agricultural Assistant was appointed to act as Assistant Botanist pending a permanent appointment.

S. J. SAINT,

Director of Agriculture,
Barbados,

Chairman of Advisory Committee.



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British West Indies Central Sugar Cane Breeding Station, Barbados.

EIGHTH ANNUAL REPORT FOR THE YEAR ENDING 30TH SEPTEMBER, 1941.

II. SUGAR CANE BREEDING—SEEDLING SELECTION AND TRIALS.

(i) SUGAR CANE BREEDING—B.43' SERIES.

8. Sugar cane breeding was carried out at Lion Castle from October to December, 1940.

9. All breeding work consisted in crossing and the usual lantern method was employed. The season favoured heavy arrowing and there was no difficulty in obtaining the desired crosses.

(ii) SEEDLING RAISING, POTTING AND PLANTING IN FIELD NURSERY—B.43' SERIES.

10. The usual sowing and potting methods were used.

11. Sowing was done from December to January and the potting was completed by February. Potted seedlings were planted in the field nursery at the end of April.

12. Table 1. shows under group heads the numbers of seedlings germinated, potted and planted in the field nursery, while Appendix I gives these details for all crosses made (q.v. at end of manuscript.)

TABLE I.

Numbers of Seedlings in each Group Germinated, Potted and Planted in the Field Nursery—B.43' Series.

Group.	No. of Crosses.	No. germinated.	No. Potted.	No. planted in field .. Nursery.
S. spontaneum x S. officinarum				
Glagah—5th nobilisation	1	54	52	45
Dacca—2nd nobilisation	1	45	32	32
S. spontaneum x S. spontaneum				
Glagah (nobilisation) x Glagah (nobilisation)	3	885	832	740
Glagah (nobilisation) x Local (nobilisation)	5	532	467	320
Glagah (nobilisation) x Celebes (Toledo derivatives	5	4,039	2,757	2,582
Glagah (nobilisation) x Celebes x Local nobilisation)	4	5,042	1,822	1,200
S. Spontaneum x S. barberi.				
Glagah (nobilisation) x Chunnee (nobilisation)	11	3,503	2,844	2,516

Group.	No. of Crosses	No. germinated.	No. Potted.	No. planted in field Nursery.
Celebes (nobilisation x Chunnee (nobilisation)	3	3,362	1,227	738
Local (nobilisation) x Chunnee (nobilisation)	1	51	40	40
S. spontaneum x S. sinense				
Glagah (nobilisation) x S. sinense (nobilisation)	5	640	589	500
Celebes (nobilisation x S. sinense (nobilisation)	1	1,060	595	410
S. barberi x S. spontaneum x S. Sinense.				
Chunnee x Glagah x S. sinense	2	278	263	217
S. barberi x S. officinarum				
Chunnee—4th Nobilisation	1	240	226	200
—Co. 281 and its derivatives.				
Co. 281 x Glagah (nobilisations)	4	6,712	2,390	1,495
Co. 281 x S. officinarum	1	194	183	118
Co. 281 x Glagah (nobilisations) x S. sinense (nobilisations)	1	1,081	579	510
Co. 281 x Celebes (nobilisations)	2	7,836	2,174	1,979
Co. 281 x Chunnee (nobilisation)	1	2,266	2,009	1,987
Co. 281 x Glagah (nobilisation) x Chunnee (nobilisation)	1	39?	366	310
Co. 290 and its derivatives				
Co. 290 x S. officinarum	2	145	124	114
Co. 290 x Glagah (nobilisation)	5	1,314	1,171	1,108
	60	39,672	20,742	17,161

13. It may be noted that for the first time in the history of cane breeding in Barbados there were no purely noble-cane crosses made. This is in accordance with the gradual change in the breeding policy which has been noted in previous reports. Further, the tendency now is to cross between derivatives of nobilisations of different *Saccharum* species with a view to combining in progenies the virtues of several species.

14. Attention is drawn to the considerable use as parents of the noble cane B.3439, the *glagah* nobilisations B.3353, B.3354, B.34102, P.O.J.2878 and the *chunnee* nobilisation B.3365. These varieties as parents in recent years have given seedling progenies of a very high standard.

(III) PLANTING THE FIRST YEAR SEEDLING TRIAL—B.42′ SERIES.

15. This series was bred in 1939, planted in the field nursery in May, 1940 and selections from the field nursery planted in the First Year Seedling Trial in October, 1940. This trial will be reaped in 1942. Details for each of the crosses are given in Appendix II. A summary of this appendix is presented in Table II below.

TABLE II.

Numbers of crosses and seedlings in each Group planted in the First Year Seedling Trial, October, 1940—B.42′ Series.

Group	No. of crosses	No. of seedlings planted in trial
Noble	2	437
Saccharum spontaneum (Java)		
(a) 3rd nobilisation	2	106
(b) 4th „	10	2,621
(c) 5th „	2	760
S. spontaneum (Celebes)		
3rd nobilisation	3	1,017
S. barberi		
(a) 3rd nobilisation	1	151
(b) 4th nobilisation	2	40
S. spontaneum (Java) x S. spontaneum (India)	5	509
S. spontaneum (Java) x S. sinense	3	141
Co.281 x Java glagah	2	742
Co.213 x „ „	1	82
Miscellaneous	11	3,792
	44	10,398

16. For the Proven Crosses in this trial the usual layout was employed. For the Experimental Crosses however, instead of randomising each stool as has been the practice in past years, each cross was divided into five groups and each group was then placed at random in each of the five blocks. This layout considerably facilitates the planting and, at reaping, should give the selector a good impression of each cross. Again it may be noted that as compared with previous years there were comparatively few noble cane seedlings planted in this trial.

(IV) RESULTS OF REAPING FIRST YEAR SEEDLING TRIALS— B.41′ SERIES.

17. These were bred in 1938, planted into the field nursery in April, 1939 and from this into the First Year Seedling Trial in October, 1939.

18. In presenting the results the several groups are treated separately.

19. (a) *Proven Crosses.* These consist of populations of seedlings derived from crosses of both noble parents and nobilisations. These crosses have by previous test been shown to give populations of seedlings with high average values in features upon which selection is based, e.g. weight, sucrose percentage etc. Each population consists of a block of seedlings, there being no longer any intention of comparing populations. The seedlings are cut, bundled and laid out for inspection and field selections made. Juice qualities are obtained by taking twelve Z.H.R. readings; three from each of four canes in each field selected seedling. Final selections are made when all are reaped.

20. There was no distinction made this year between early and late groups although for the sake of convenience the seedlings were cut at two separate times.

21. Table III gives details of field and final selections.

TABLE III.

First Year Seedlings—B.41' Series. Field and Final Selections from Proven Crosses.

Cross		No. Seedlings Reaped	No. Selected in Field	% Field Selection	No. Finally Selected	% Final Selection
First Reaping.						
B.3439 x B.417	Noble	48	7	15	5	10
B.3439 x B.3461		102	15	15	7	7
B.3439 x B.3489		83	6	7	4	5
Ba.11569 x B.693		460	15	3	6	1
Ba.11569 x B.H.10(12)		490	19	4	4	1
Ba.11569 x B.6450		98	1	1	0	0
Ba.11569 x D.66/30		195	8	4	0	0
Co.213 x P.O.J.2878	Nobilisations	7	2	29	2	29
B.3354 x B.H.10(12)		48	6	13	5	10
B.3353 x B.H.10(12)		31	3	10	3	10
B.3365 x P.O.J.2878		71	6	9	4	6
B.3353 x Ba.6032		35	2	6	2	6
B.3365 x B.2935		308	16	5	8	3
B.3172 x Ba.6032		67	2	3	1	2
B.3215 x P.O.J.2878		569	15	3	8	1
B.3365 x B.35272		447	6	1	2	1
B.35197 x B.6450		12	0	0	0	0
Co.213 x B.603		6	0	0	0	0
Second Reaping.						
B.3439 x B.3307	Noble	241	27	11	19	8
B.3439 x Ba.6032		94	7	7	5	5
B.3439 x E.K.28		275	18	7	13	5
Ba.1169 x Q.813		130	1	1	1	1
,, x Ba.8069		305	5	2	3	1
,, x Ba.6032		226	6	3	1	1
,, x B.603		294	6	2	1	1
,, x D.49/30		178	2	1	0	0
B.3353 x B.35276	Nobilisations	60	3	5	3	5
B.35204 x Ba.6032		82	10	12	4	5
B.3013 x P.O.J.2878		320	9	3	6	2
B.34102 x B.2935		212	4	2	3	1
B.(30)L.6 x B.3419		176	0	0	0	0
B.3353 x B.34116		328	0	0	0	0
		5,998	227	4	120	2

22. With the exception of the B.3439 crosses, seedlings obtained from noble crosses were disappointing as compared with those derived from nobilised parents.

23. Of the noble crosses listed the following only will be repeated:—

B. 3439 x B. 417
B. 3439 x B. 3307
B. 3439 x E.K. 28

24. Of the nobilised crosses the following only will be repeated:—

Co. 213 x P.O.J. 2878
B.3353 x B.H. 10(12)
B. 3354 x "
B. 3365 x P.O.J. 2878
B. 3353 x Ba. 6032
B. 3353 x B. 35276
B. 35204 x Ba. 6032
B. 3013 x P.O.J. 2878

25. The last named cross B.3013 x P.O.J. 2878 is to be repeated with the main object of obtaining mosaic disease resistant seedlings for Jamaica.

26.(b) *Experimental Crosses.* This group contains nobilised seedlings only. The object of the trial is twofold, i.e. (1) to compare crosses by comparing their progenies and (2) to provide possible commercial seedlings. With a view to rendering legitimate a comparison of crosses, any one seedling in this group is inserted at random on a plan and planted in the field accordingly. It follows that the seedlings of each and every cross are scattered throughout the test area. For purposes of comparison between crosses, for every seedling the following data is obtained at reaping:—(1) weight, (2) number of canes, (3) length and width of an average cane, (4) percentage arrowing and (5) juice brix value. The best of these crosses are subsequently promoted to the proven cross group.

27. Possible commercial seedlings are also selected during reaping. Table IV gives the details of the field and final selections of this group.

TABLE IV.

First Year Seedlings—B.41' Series. Field and Final Selections from Experimental Crosses.

Cross.	No. Seedlings Reaped.	No. Selected in field.	% Field Selection.	No. Finally Selected.	% Final Selection.
B.37266 x Ba.6032	44	5	11	4	9
B.35207 x P.O.J.2878	273	36	13	19	7
B.3439 x B.37256	339	36	11	23	7
B.3439 x B.(30)L7	338	41	12	22	6
C.P.807 x B.H.10(12)	27	4	15	1	4
B.37257 x B.2935	54	2	4	1	2
B.3439 x B.37252	60	5	8	1	2
B.37260 x B.2935	131	7	5	3	2
Ba.11569 x B.34161	125	4	3	2	2
P.O.J.2725 x B.35245	103	1	1	1	1
B.34123 x B.2935	106	1	1	1	1
P.O.J.2725 x B.3464	160	3	2	1	1
B.37226 x B.2935	7	0	0	0	0
B.37263 x B.H.10(12)	19	0	0	0	0
B.37278 x B.2935	33	0	0	0	0
B.35271 x B.603	30	1	3	0	0
B.3013 x B.37253	323	2	1	0	0
P.O.J.2725 x B.2935	107	3	3	0	0
P.O.J.2722 x B.2935	77	0	0	0	0
B.35257 x B.2935	49	0	0	0	0
Ba.11569 x B.H.10(12)	232	0	0	0	0
	2,637	151	6	79	3

28. These selection figures for the various crosses tested are used in conjunction with the detailed data mentioned above in assessing the value of crosses and in guiding the breeding work.

(v) PROGRESS WITH SEEDLINGS OF THE B.40' SERIES.

29 (i) *Noble Cane Seedlings.* In all 109 of these were selected from the first year trial during the 1940 crop. These were multiplied at Codrington Experimental Station until November when a further examination was made and forty-one eliminated. The seedlings surviving this examination were then planted in plots at Dodds: these plots to serve for multiplication and gumming disease resistance tests. The survivors from these tests will be planted in the Second Year Trials during the Season 1941—43.

30. (ii) *Nobilisations.* The following nobilised seedlings were selected from the First Year Trial, 1940:—

Proven Nobilisation Group	....	....	95
Experimental Crosses	....	....	61
Early Nobilisations	....	....	28
			184

These were multiplied at Codrington Experimental Station during 1940 and in October, from these multiplication plots 98 (ninety-eight) were selected. These selections were allocated as follows (in some cases a seedling being placed in one or more categories.)

(a) Central Sugar Cane Breeding Station Thick Cane Trial at Cliff (high rainfall station) and Codrington (low rainfall station)
Standards—B.2935 and B.H.10(12) .... 63 seedlings

(b) Central Sugar Cane Breeding Station Thin Cane Trial at Cliff and Codrington.
Standards—B.37161, B.34104 and B.H.10(12) .... 18 seedlings

(c) Select Seedling Trials .... 3 seedlings

(d) Lion Castle for breeding purposes .... 17 seedlings

(VI) PROGRESS WITH SEEDLINGS OF THE B.39' SERIES.

31. (a) *Noble Cane Seedlings.* These were selected in 1939, multiplied at Codrington and in November planted at Dodds for further multiplication, gumming disease resistance tests and minor selection.

32. Out of an original total of ninety-nine seedlings, thirty-eight were eliminated on account of poor appearance in the field or susceptibility to gumming disease. The remaining sixty-one seedlings were planted in Second Year Trials for the season 1940—42.

33. (b) *Nobilisations.* The selections from the multiplication plots at Codrington in October, 1939 were planted in a special Second Year Trial styled the Central Sugar Cane Breeding Station Second Year Trial. This trial was reaped in 1941. It was divided into a thick and thin cane trial, the standards in the former being B.2935 and P.O.J. 2878 and in the latter Co.213. The performances of the standards and selected seedlings are presented in Tables V and VI.

TABLE V

Central Sugar Cane Breeding Station Second Year Trial B.39' Series (Nobilisations) Codrington 1939—41. Performances of Standards and Selected Seedlings. (The Figures given are the Means of four Plots.)

(a) *Thick Cane Trial. Reaped 6th—7th February, 1941. (45 Seedlings Tested)*

Seedling	Parentage		Mean No. Canes per plot (rotten)	% Arrow-ing	Z.H.R. Brix	Mean Yield Tons per Acre
B.2935	Standard		103(3)	0	20.4	24.48
P.O.J.2878	„		156(4)	2	22.7	19.22
B.39200	B.35206	x B.603	130(2)	4	22.1	30.98
B.39207	„	x „	159(2)	4	20.1	29.81
B.39198	B.35185	x B.2935	129(5)	8	21.1	27.72
B.39240	B.3365	x „	134(1)	2	22.3	27.14
B.39171	B.3285	x B.H.10(12)	112(3)	1	21.6	26.21
B.39184	B.3335	x B.2935	108(9)	0	22.6	25.78
B.39211	B.3013	x P.O.J.2878	101(6)	5	23.1	25.70
B.39222	„	x „	101(2)	1	23.2	24.48
B.39258	B.35268	x B.2935	135(0)	0	18.6	23.40
B.39257	B.3238	x B.35253	112(2)	0	22.1	23.33
B.39199	B.35185	x B.2935	100(11)	5	21.3	22.32
B.39229	B.3172	x „	77(1)	0	22.7	22.03
B.39215	B.3013	x P.O.J.2878	122(4)	0	23.7	21.53
B.39220	„	x „	103(5)	0	24.1	21.46
B.39213	„	x „	103(1)	0	21.3	21.38
B.39192	B.35230	x B.603	101(2)	0	22.0	21.38
B.39219	B.3013	x P.O.J.2878	99(1)	0	23.0	20.95
B.39223	„	x „	127(0)	0	23.7	20.02

TABLE VI

(b) *Thin Cane Trial. Reaped 13th February, 1941. (24 Seedlings Tested)*

Seedling	Parentage		Mean No. Canes per plot (rotten)	% Arrow-ing	Z.H.R. Brix	Mean Yield Tons per Acre
Co.213	Standard		262(1)	49	20.5	23.62
B.39254	B.35271	x B.2935	207(2)	0	21.0	30.74
B.39156	B.35197	x B.603	128(2)	22	20.9	28.43
B.39177	B.35218	x S.C.12/4	161(1)	0	23.1	27.36
B.39157	B.35197	x B.603	141(1)	0	22.1	25.63
B.39154	„	x B.603	82(2)	0	24.1	24.84
B.39237	B.3365	x B.2935	130(1)	0	23.7	24.05
B.39268	B.3013	xB.35251	145(4)	0	22.5	21.24

(VII) SECOND YEAR SEEDLING TRIALS—B.38' SERIES.

34. *Noble Canes.* A total of forty-six seedlings of the B.38' series were included in Second Year Trials. All of these seedlings were placed at the low rainfall station Dodds and the high rainfall stations Todds and Vaucluse. The performances of the single selection—B.3856—and the standards are given in Table VII.

TABLE VII

Second Year Seedling Trials—B.38' Series.

Seedling	Dodds Early Reaping 30.1.41		Dodds Late Reaping 6.3.41		Todds Early Reaping 21.2.41		Vaucluse Late Reaping	
	Weight Tons/acre Mean of 4 plots	Z.H.R. Brix Mean of 4 plots	Weight Tons/acre Mean of 4 plots	Z.H.R. Brix Mean of 4 plots	Weight Tons/acre Mean of 4 plots	Z.H.R. Brix Mean of 4 plots	Weight Tons/acre Mean of 4 plots	Z.H.R. Brix Mean of 4 plots
B.2935*	25.02	20.4	24.12	20.6	—	—	—	—
B.726*	—	—	—	—	36.66	22.3	—	—
B.H.10(12)*	—	—	—	—	33.15	20.4	36.73	22.2
B.3013*	—	—	—	—	33.00	21.0	35.10	22.9
B.35187*	—	—	—	—	44.98	20.6	—	—
B.35245*	—	—	—	—	42.38	22.6	—	—
B.37161*	—	—	—	—	46.41	21.2	—	—
B.3856	25.55	22.1	21.45	24.2	37.05	20.9	38.81	23.3

* Standard varieties.

35. This seedling, B.3856, is being multiplied and will be further tested in Barbados in Select Seedling Maturity Trials.

(VIII) PROGRESS WITH SEEDLINGS OF B.37′ SERIES.

36. *Noble Canes.* These were reaped as plant canes in Second Year Trials in 1940 and those selected were multiplied and planted in Select Seedling Trials to be reaped in 1942. The selections were again reaped as first ratoons in the Second Year Trials during 1941 and their performances are presented in Tables VIII and IX.

TABLE VIII

Second Year Seedling Trial—Early Group—First Ratoons.
Reaped at Dodds 13.3.41.

	Weight Tons/acre Mean of 4 plots	Z.H.R. Mean of 4 plots
B.2935*	17.75	22.4
B.3439*	30.87	23.7
B.3734	25.28	22.7
B.3737	23.20	22.2
B.3703	21.91	21.8
B.3708	16.48	23.2
B.3739	15.66	24.4

* Standard Varieties.

TABLE IX

Second Year Seedling Trial—Late Group—First Ratoons.
Reaped at Dodds 13.3.41. and Todds 14.3.41.

	Dodds		Todds	
	Wt. Tons/acre Mean of 4 plots	Z.H.R. Brix Mean of 4 plots	Wt. Tons/acre Mean of 4 plots	Z.H.R. Brix Mean of 4 plots
B.2935*	21.09	21.5	—	—
B.3439*	32.54	23.1	—	—
B.H.10(12)*	—	—	31.33	21.7
B.3013*	—	—	33.70	22.8
B.3791	22.27	20.5	36.70	19.6
B.37107	21.22	21.8	34.16	21.2
B.3771	19.81	23.3	30.97	22.2
B.3777	19.68	22.8	38.21	21.8
B.3775	19.10	22.2	15.58	22.2
B.3774	18.11	22.4	33.54	22.4
B.37111	14.94	21.5	31.62	22.8

* Standard Varieties.

(IX) SELECT SEEDLING AND CO-OPERATIVE VARIETY TRIALS—B.37′, B.35′, B.34′, B.33′, B.31′ AND B.30′ SERIES.

A. THE SEEDLINGS TESTED.

(1) *Select Seedling Trials.*

Plant Canes	B.3371, B.3521, B.3540, B.37157, B.37161, B.37181
1st Ratoons	B.3439, B.3521.
2nd Ratoons	B.3419, B.35187, B.35245.
3rd Ratoons	B.3013, B.3127, B.3439.

(2) *Variety Trials.*

Plant Canes	B.3013, B.3127, B.35187, B.35245.
1st Ratoons	B.3013, B.3127, B.3419, B.3439.
2nd Ratoons	B.3013, B.3127.

B. AN ECOLOGICAL CLASSIFICATION OF THE TRIALS.

37. The classification is similar to that used in recent years and is as follows:—

(a) Black and sandy coral limestone soils where the average seasonal rainfall is low. On account of low rainfall, ratooning is difficult and cane tonnages usually low. Stations in this category were:—

(1) *Select Seedling Trials.*

Plant Canes	Bushy Park, Prior Park, Norwood (Maturity Trials).

(2) *Variety Trials.*

Plant Canes	Coverly, Springhall, River.
2nd Ratoons	Grazettes.

(b) Black coral limestone soils of low-intermediate rainfall. On account of a better rainfall than Category (a), a certain amount of ratooning is practised. The extent of ratooning would increase, were stronger ratooning varieties available. The stations in this category were:—

(1) *Select Seedling Trials.*

Plant Canes	Bourbon, Edgecumbe.
1st Ratoons	Belle, Bagatelle.

(2) *Variety Trials.*

Plant Canes	Newton, Bennetts.
1st Ratoons	Lears, Lower Greys.

(c) Valley deep black coral limestone soil area, low-intermediate rainfall. This area may suffer periodic waterlogging. Soils, especially sub-soils, tend to a heavy texture and root diseases are commonest here. Varieties resistant to the root disease complex are necessary here. A considerable percentage of this area is ratooned. Stations in this category were:

(1) *Select Seedling Trials.*

Plant Canes	Bulkeley.

(2) *Variety Trials.*

Plant Canes	Constant.
1st Ratoons	Bentley.

(d) Red coral limestone area, intermediate to high rainfall. One to four ratoon crops are grown here. Stations in this category were:—

(1) *Select Seedling Trials.*

Plant Canes	Welchtown, Claybury, Easy Hall, Pool (Maturity Trial).
2nd Ratoons	Mount Wilton, Bowmanston (Maturity Trial).
3rd Ratoons	Drax Hall.

(2) *Variety Trials.*

Plant Canes	Ashbury, Clifton Hall, Horse Hill Lancaster, Farmers, Mount Wilton.
1st Ratoons	Golden Ridge, Fisherpond, Kendal.
2nd Ratoons	Woodland, Groves.

C. RAINFALL DURING THE SEASON.

38. The average Island monthly rainfall for the season of crop growth under review is compared in the Table below with the monthly averages for the seasons 1938—39 and 1939—40 and the period 1920—21 to 1937—38.

MONTH AND RAINFALL IN INCHES.

Month	Seasons			
	1940-41	1939-40	1938-39	1920-21 to 1937-38
January	2.32	2.34	3.26	3.38
February	0.44	3.34	2.49	1.86
March	5.46	1.28	2.02	1.57
April	0.56	0.87	1.19	1.67
May	1.11	0.79	3.46	1.91
June	2.54	3.03	4.37	4.48
July	5.50	3.97	6.79	6.40
August	6.50	4.63	8.81	6.19
September	6.17	3.79	10.58	7.22
October	6.07	8.25	10.42	7.37
November	7.18	9.02	28.09	8.55
December	1.89	2.53	6.89	4.03
January	1.42	2.32	2.34	3.38
February	0.45	0.44	3.34	1.86
March	1.46	5.46	1.28	1.57
Totals	49.07	52.06	95.33	61.44

39. It can be seen that the rainfall for season 1940—41 was even less than for 1939—40 and appreciably below the average for the eighteen year period 1920—21 to 1937—38. The high rain in March, 1940 encouraged an early growth, which however suffered a set back by the dry spell from April to June. Rains from July to November were almost average and the crop was making a good recovery, but this was halted by a severe drought from December, 1940 to March, 1941. The canes ripened prematurely and juice purities as well as tonnages were low.

D. RESULTS OF THE TRIALS.

40. In Select Seedling Plant Cane Trials, the following data is obtained:—(1) cane tonnage, (2) number of rotten canes, (3) complete cane chemical analyses from plot sample bundles and so (4), a calculation of the saccharose yields per acre.

41. In Selecting Seedling Ratoon Trials, cane tonnages, number of rotten canes and juice brix figures are obtained.

42. In Variety Trials cane tonnages and juice brix values are obtained.

43. For purposes of economy, the diagram indicating yields has been omitted and tables substituted.

44. The results from the several categories are considered here.

Category A. Results here are given in Tables X, XI, and XII.

TABLE X

Select Seedling Trials—Plant Canes

Estates—Bushy Park, Prior Park, Norwood. (Maturity Experiment) Figures are means for all estates for early and late reapings.

Variety	Cane Tons/acre		% Sucrose* in cane		Quotient of Purity*		Sugar Tons/acre		No. Rotten Canes/plot	
	Early Reaping	Late Reaping	Early Reaping	Late Reaping	Early Reaping	Late Reaping	Early Reaping	Late Reaping	Early Reaping	Late Reaping
B.2935	20.53	22.55	13.3	14.3	83.5	82.7	2.55	3.00	27	39
B.3371	21.00	19.99	13.6	13.9	82.6	80.8	2.95	2.88	10	28
B.3521	22.29	21.28	13.0	14.0	85.0	85.8	2.96	3.08	8	22
B.37161	29.29	29.42	12.8	13.8	84.6	84.4	3.85	4.30	12	17
B.37181	22.76	22.45	13.0	13.4	82.9	81.1	2.80	2.75	24	67

* Bushy Park and Prior Park results only.

TABLE XI

Variety Trials—Plant Canes.

Estates—Coverley, Springhall, River.

Variety	Cane Tons per Acre				Z.H.R. Brix.			
	Coverley	Springhall	River	Mean	Coverley	Springhall	River	Mean
B.2935	22.42	24.13	22.33	22.96	20.5	19.3	21.8	20.5
B.35245	19.85	18.90	20.12	19.62	22.5	22.2	23.6	22.8

TABLE XII.

Variety Trial—Second Ratoons.

Estate—Grazettes.

Variety	Cane Tons/Acre	Z.H.R. Brix
B.2935	16.56	21.7
B.3439	19.27	22.4

45. In the Select Seedling Plant Cane Trials (Table X), B.37161 is outstanding giving an increase in calculated sugar per acre yields over the standard—B.2935 of approximately fifty per cent. There is little to choose between the other seedlings and the standard.

46. In the Variety Plant Cane Trials (Table XI) the standard—B.2935 gave higher cane tonnages although lower brixes than the seedling being tested namely B.35245.

47. In the second ratoon Variety Trial (Table (XII), B.3439 was definitely superior to B.2935.

Category B. Results are given in Tables XIII, XIV, XV.

TABLE XIII.

Select Seedling Trials—Plant Canes.

Estates—Bourbon, Edgecumbe.
Figures are means for all estates for early and late reapings.

Variety	Cane Tons/acre		% Sucrose in cane		Quotient of Purity		Sugar Tons/acre		No. Rotten Canes/plot	
	Early Reaping	Late Reaping	Early Reaping	Late Reaping	Early Reaping	Late Reaping	Early Reaping	Late Reaping	Early Reaping	Late Reaping
B.726	23.09	20.15	15.8	16.2	88.5	87.2	3.63	3.26	11	49
B.2935	27.80	22.36	14.4	15.1	85.3	83.2	4.00	3.38	17	55
B.3371	21.46	18.26	15.4	15.7	85.4	84.6	3.32	2.91	15	74
B.3521	25.38	20.29	14.6	14.9	87.8	87.8	3.68	2.79	14	48
B.37161	34.54	32.90	14.9	15.2	88.7	87.3	5.15	5.00	11	15
B.37181	27.96	20.99	14.1	14.2	85.3	82.3	3.94	3.01	26	121

TABLE XIV

Select Seedling Trials—First Ratoons.

Estates—Belle, Bagatelle.

Variety	Cane Tons/acre					Z.H.R. Brix					No. Rottten Canes/Plot				
	Belle		Bagatelle			Belle		Bagatelle			Belle		Bagatelle		
	Early Group	Late Group	Early Group	Late Group	Mean	Early Group	Late Group	Early Group	Late Group	Mean	Early Group	Late Group	Early Group	Late Group	Mean
B.726	15.40	16.13	11.45	8.58	12.89	23.3	23.4	23.3	23.4	23.4	8	5	26	45	21
B.2935	18.22	15.09	13.74	12.03	14.77	22.0	21.3	21.6	20.9	21.5	21	18	29	24	23
B.3439	30.82	25.86	20.80	20.26	24.44	22.3	22.2	22.8	22.8	22.5	6	4	5	12	7
B.3521	20.94	18.03	13.64	11.18	15.95	21.6	21.7	21.9	21.7	21.7	5	6	30	13	14

TABLE XV.

Variety Trials.—Plant Canes.
Estates—Newton, Bennetts.

Variety	Cane Tons/acre			Z. H. R. Brix		
	Newton	Bennetts	Mean	Newton	Bennetts	Mean
B.726	19.31	26.82	23.06	23.9	23.1	23.5
B.2935	23.65	31.90	27.77	21.4	20.4	20.9
B.35187	21.52	31.37	26.44	22.3	20.7	21.5
B.35245	22.10	27.91	25.00	22.8	22.9	22.9

TABLE XVI.

Variety Trials.—First Ratoons.
Estates—Lears, Lower Greys.

Variety	Cane Tons/acre			Z. H. R. Brix		
	Lears	Lower Greys	Mean	Lears	Lower Greys	Mean
B.726	17.06	—	17.06	23.6	—	23.6
B.2935	23.16	18.33	20.74	21.4	22.5	22.0
B.3419	16.01	15.65	15.83	23.5	24.0	23.8
B.3439	25.41	25.45	25.43	24.0	24.4	24.2
B.3127	—	22.45	22.45	—	24.0	24.0

48. In the Plant Cane Select Seedling Trials (Table XIII), again B.37161 is outstanding, giving increases in calculated sugar per acre yields over the standards—B.726 and B.2935 of approximately 30% and 50% at the early and late reapings respectively. The other seedlings tested were not so good as the standards. The comparative fewness of rotten canes in B.37161 at the late reaping is to be noted.

49. In the First Ratoon Select Seedling Trials (Table XIV), B.3439 was decidedly superior to the standards—B.726 and B.2935 in cane yield and intermediate in juice brix values. B.3439 kept very sound during crop.

50. In the plant Cane Variety Trials (Table XV), B.35187 and B.35245 gave cane yields somewhat less than B.2935 although better than B.726. In juice brix values B.726 was closely followed by B.35245, both being better than B.35187 and B.2935.

51. In the First Ratoon Variety Trials (Table XVI), B.3439 was superior in cane yield and juice brix values to both B.726 and B.2935.

Category C. Results are presented in Tables XVII, XVIII, XIX.

TABLE XVII.

Select Seedling Trials—Plant Cane.

Estate—Bulkeley.

Plot Means for Early and Late Reapings.

Variety	Cane Tons/acre		% Sucrose in cane		Quotient of Purity		Sugar Tons/acre		No. Rotten Canes/Plot	
	Early Reaping	Late Reaping	Early Reaping	Late Reaping	Early Reaping	Late Reaping	Early Reaping	Late Reaping	Early Reaping	Late Reaping
B.726	23.87	22.55	15.4	16.2	88.0	87.7	3.69	3.66	11	17
B.3127	22.85	24.79	16.0	17.1	88.0	88.7	3.65	4.24	4	11
B.3371	25.24	22.81	14.2	15.2	82.5	81.6	3.60	3.46	32	59
B.3521	27.47	26.47	14.5	15.4	86.7	88.2	3.99	4.09	4	15
B.3540	29.47	28.91	14.0	15.0	87.0	86.8	4.13	4.33	10	29
B.37161	41.15	38.06	14.1	15.4	85.9	86.9	5.79	5.86	8	12
B.37181	34.27	30.56	13.6	14.5	82.8	83.5	4.61	4.44	33	79

TABLE XVIII

Variety Trial—Plant Cane.

Estate—Constant.

	B.726	B.3127	B.35245	B.35187
Cane—Tons/acre	27.28	29.68	33.09	36.36
Z.H.R. Brix.	23.3	23.5	22.4	22.5

TABLE XIX.

Variety Trial—First Ratoons.
Estate—Bentley.

	B.726	B.3419	B.3439
Cane—Tons/acre	10.82	10.84	16.72
Z.H.R. Brix.	23.9	24.3	23.3

52. As in the Plant Cane Select Seedling Trials in categories A and B, so here in category C, (Table XVII), the seedling B.37161 far outyields the standard B.726 in calculated sugar per acre yields. The increase here is in the order of 60%. While the seedlings B.3521, B.3540 and B.37181 are somewhat better than B.726, their superiority is not so marked as that of B.37161. The canes of both B.3540 and B.37181, moreover, show a tendency to rot by the time of the later reaping.

53. In the Plant Cane Variety Trial (Table XVIII) both seedlings—B.35245 and B.35187 gave emphatically heavier yields of cane than the standard B.726, with juice brix values only slightly inferior.

54. In the First Ratoon Variety Trial B.3439 gave higher cane yields than B.726 with a juice Brix value only slightly inferior.

Category D. Results in this Category are presented in Tables XX to XXV inclusive.

TABLE XX.

Select Seedling Trials—Plant Canes.
Estates—Welchtown, Easy Hall, Claybury, Pool (Maturity Experiment)
Figures are means for all estates for early and late reapings.

Variety	Cane Tons/acre		†% Sucrose in Cane		†Quotient of Purity		†Sugar Tons/acre		No. Rotten Canes/Plot	
	Early Reaping	*Late Reaping	Early Reaping	*Late Reaping	Early Reaping	*Late Reaping	Early Reaping	*Late Reaping	Early Reaping	*Late Reaping
B.3013	28.78	—	15.1	—	87.0	—	4.15	—	3	—
B.H.10 (12)	—	28.26	—	15.5	—	87.9	—	3.98	—	45
B.3371	31.59	28.34	15.0	15.0	86.3	86.6	4.52	4.00	10	35
B.3521	32.17	33.57	14.5	14.6	88.7	89.8	4.22	4.13	13	29
B.3540	32.35	30.57	14.0	13.8	87.5	88.0	4.30	3.76	35	77
B.37161	39.61	42.78	14.1	15.0	87.5	89.2	5.28	5.95	8	17
B.37181	37.11	33.06	13.6	13.2	83.9	83.9	5.01	4.06	52	99

† Results from Welchtown, Claybury, Easy Hall only.
* Easy Hall not included.

TABLE XXI.

Select Seedling Trials—Second Ratoons.

Estates—Mount Wilton, Bowmanston (Maturity Trial)

Variety	Cane Tons/acre				Z.H.R. Brix.				No. Rotten Canes/ Plot			
	Mt. Wilton Early Group	Mt. Wilton Late Group	Bowmanston	Mean	Mt. Wilton Early Group	Mt. Wilton Late Group	Bowmanston	Mean	Mt. Wilton Early Group	Mt. Wilton Late Group	Bowmanston	Mean
B.726	30.25	—	25.40		23.6	—	23.8	23.7	69	—	29	49
B.H.10(12)	—	28.71	23.86	26.29	—	22.3	23.6	22.9	—	18	26	18
B.3419	32.97	34.09	30.67	32.58	23.0	23.5	23.1	23.2	14	9	12	22
B.35187	41.61	37.26	36.85	38.57	22.8	21.5	21.9	22.1	18	36	17	35
B.35245	43.93	41.70	39.00	41.54	23.7	23.2	23.3	23.4	30	9	14	26

TABLE XXII.

Select Seedling Trial—Third Ratoons.

Estate—Drax Hall.

Variety	Cane—Tons/acre		Z.H.R. Brix.		No. Rotten Canes/Plot	
	Early Group	Late Group	Early Group	Late Group	Early Group	Late Group
B.726	17.36	—	24.4	—	173	—
B.H.10(12)	—	26.16	—	24.2	—	19
B.3013	19.97	23.61	24.7	24.8	93	14
B.3127	24.74	28.14	24.6	23.9	61	6
B 3439	—	33.45	—	22.7	—	7

TABLE XXIII.

Variety Trials—Plant Canes.

Estates—Ashbury, Clifton Hall, Horse Hill, Lancaster, Farmers, Mount Wilton.

Estate	Cane Tons/acre				Z.H.R. Brix			
	B.H. 10(12)	B. 3013	B. 35245	B. 35187	B.H. 10(12)	B. 3013	B. 35245	B. 35187
Ashbury	31.87	—	—	38.53	22.4	—	—	20.2
Clifton Hall	—	35.30	36.50	38.35	—	22.1	21.1	19.0
Horse Hill	—	27.79	30.99	34.91	—	24.6	23.4	22.9
Lancaster	31.51	—	—	36.60	21.1	—	—	20.2
Farmers	33.04	—	—	35.69	21.2	—	—	20.6
Mount Wilton	—	26.20	33.24	39.25	—	23.4	23.1	22.6
Mean	32.13	29.76	33.58	37.22	21.6	23.4	22.5	20.9

TABLE XXIV.

Variety Trials—First Ratoons.

Estates—Golden Ridge, Fisherpond, Kendal.

Estate	Cane Tons/acre				Z.H.R. Brix			
	B.H. 10(12)	B. 726	B. 3013	B. 3419	B.H. 10(12)	B. 726	B. 3013	B. 3419
Golden Ridge	27.62	21.05	25.74	29.22	19.0	20.3	21.4	20.4
Fisherpond	29.42	30.33	34.19	33.03	21.5	21.6	22.9	22.6
Kendal	28.31	27.92	25.88	22.39	23.5	24.0	23.8	24.4
Mean	28.45	26.43	28.60	28.21	21.3	22.0	22.7	22.5

TABLE XXV.

Variety Trial—Second Ratoons.

Estates—Woodland, Groves.

Variety	Cane Tons/acre			Z.H.R. Brix		
	Woodland	Groves	Mean	Woodland	Groves	Mean
B.H.10 (12)	25.74	32.63	29.19	23.2	22.1	22.7
B.726	28.28	26.64	27.46	23.8	22.7	23.2
B.3013	27.77	33.17	30.47	22.9	21.2	22.0
B.3127	27.66	32.00	29.83	22.4	21.5	22.0

55. In the Plant Cane Select Seedling Trials (Table XX), once again B.37161 outyielded all other seedlings and the standards—B.H.10(12) and B.3013. In calculated sugar per acre yields it gave increases of 27% and 50% over the standards B.3013 and B.H.10(12) in the early and late reaping groups respectively. The seedling—B.37181 also gave high yields, but again its tendency to lose weight during crop was very marked.

56. In the Second Ratoon Select Seedling Trials (Table XXI) the seedling B.35187 and more especially B.35245 emphatically outyielded the standards B.726 and B.H.10(12) in cane yield. Further the juice brix values of B.35245 were little inferior to those of B.726, while those of B.35187 were little inferior to those of B.H.10(12).

57. In the Third Ratoon Select Seedling Trial (Table XXII), the chief item of interest is that B.3439 appreciably outyielded B.H.10(12).

58. In the Plant Cane Variety Trials (Table XXIII), B.35245 gave higher cane yields and slightly inferior juice brix values than the standard—B.3013. The seedling—B.35187 gave higher cane yields than both standards —B.3013 and B.H.10(12) with juice brix values slightly inferior to B.H.10(12).

59. In the First and Second Ratoon Variety Trials (Tables XXIV and XXV) there is little to choose between the varieties and seedlings tested.

E. CONCLUSIONS FROM THE SELECT SEEDLING AND CO-OPERATIVE VARIETY TRIALS.

60. In all, thirty-six trials were reaped throughout the island. These comprised both plant cane and ratoon Select Seedling and Variety Trials scattered over the four recognised ecological categories.

61. The outstanding seedlings proved to be—B.3439, B.35187, B.35245 and B.37161. These are considered in turn.

62. *B.3439.* A summary of its performances in 1941 is given here:—

Ecological Category	Trial	Variety and Yields							
		B.3439		B.2935		B.726		B.H.10(12)	
		Tons/ acre Cane	Brix°	Tons/ acre Cane	Brix°	Tons/ acre Cane	Brix°	Tons/ acre Cane	Brix°
A.	Variety, 2nd Ratoon	19.27	22.4	16.56	21.7	—	—	—	—
B.	Select Seedling 1st Ratoon	28.32	22.5	16.70	21.7	15.71	23.3	—	—
,,	,, ,, ...	20.56	21.8	12.92	21.2	10.10	23.4	—	—
,,	Variety, 1st Ratoon	25.41	24.0	23.16	21.4	17.06	23.6	—	—
,,	,, ,, ...	25.45	24.4	18.33	22.5	—	—	—	—
C.	Variety, 1st Ratoon	16.72	23.3	—	—	10.82	23.9	—	—
D.	Select Seedling 3rd Ratoon	33.45	22.7	—	—	—	—	26.16	24.2

63. It is to be noted that all are ratoon trials; B.3439 already having been fully tested as a plant cane. The results from these trials are conclusive and demonstrate the superiority of B.3439 over the standards in all ecological categories. It has been recommended for commercial planting in Barbados for 5% of each of the categories.

64. *B.35187.* Results from all trials in which it has been reaped to date in Barbados in categories B, C and D, are given here. It is considered quite unsuited to Category A.

Ecological Category	Trial	Variety and Yields							
		B.35187		B.2935		B.726		B.H10(12)	
		Tons per acre cane	Brix°	Tons per acre cane	Brix°	Tons per acre cane	Brix°	Tons per acre cane	Brix°
B.	Plant Cane ...	55.41	20.2	—	—	43.32	21.3	—	—
,,	,, ...	59.09	21.3	37.86	20.9	—	—	—	—
,,	,, ...	21.52	22.3	23.56	21.4	19.31	23.9	—	—
,,	,, ...	31.37	20.7	31.90	21.4	26.82	23.1	—	—
,,	1st ratoons ...	24.92	22.4	—	—	22.07	21.8	—	—
,,	,, ...	22.22	21.1	16.73	20.7	—	—	—	—
C.	Plant Canes ...	36.36	22.5	—	—	27.28	23.3	—	—
D.	,, ...	59.58	19.7	—	—	49.93	22.1	51.11	20.1
,,	,, ...	56.53	18.4	—	—	46.92	21.3	—	—
,,	,, ...	62.94	15.7	—	—	57.47	18.8	—	—
,,	,, ...	60.12	17.9	—	—	—	—	47.84	18.0
,,	,, ...	51.28	20.0	—	—	—	—	43.24	21.9
,,	,, ...	57.13	20.5	—	—	44.04	22.1	47.92	22.6
,,	,, ...	55.30	21.6	—	—	49.25	23.4	43.71	22.5
,,	,, ...	44.98	20.6	—	—	36.66	22.3	33.15	20.4
,,	,, ...	38.53	20.2	—	—	—	—	31.87	22.4
,,,	,, ...	35.69	20.6	—	—	—	—	33.04	21.2
,,	,, ...	29.84	22.4	—	—	26.83	23.0	—	—
,,	1st ratoons ...	30.31	22.1	—	—	—	—	26.57	23.1
,,	,, ...	35.72	22.6	—	—	26.52	23.6	24.40	23.2
,,	,, ...	51.62	21.3	—	—	45.03	22.0	—	—
,,	,, ...	52.27	20.6	—	—	—	—	43.13	20.8
,,,	2nd ratoons ...	41.61	22.8	—	—	30.25	23.6	—	—
,,	,, ...	37.26	21.5	—	—	—	—	28.71	22.3
,,	,, ...	36.85	21.9	—	—	25.40	23.8	23.86	23.6

65. It is evident that B.35187 requires a long favourable growing season in order to give high cane yields and allow it to ripen its juice. It is unsuited to the low rainfall conditions in Category A. but may have a limited value in categories B. and C. although in these it is probable that B.37161 is better. In category D. however, it gives very high plant cane and ratoon yields and, provided it is allowed to ripen, gives very good juices. It is best suited as a late cane for category D. and here will replace B.H.10(12). In Barbados, it is recommended as a late cane for 20%—30% of the plantings in category D. and 5%—10% in categories B. and C.

66. *B.35245.* Results from all trials reaped to date in categories B. C. and D. are given here. As with B.35187, it is not considered suited to Category A.

Ecological Category	Trial	Variety and Yields							
		B.35245		B.2935		B.726		B.H.10(12)	
		Tons per acre cane	Brix°	Tons per acre cane	Brix°	Tons per acre cane	Brix°	Tons per acre cane	Brix°
B.	Plant cane	39.45	20.3	—	—	37.31	21.5	—	—
,,	,, ...	46.92	20.3	—	—	43.32	21.3	—	—
,,	,, ...	40.75	22.5	48.75	21.2	—	—	—	—
,,	,, ...	46.71	22.1	37.86	20.9	—	—	—	—
,,	,, ...	22.10	22.8	23.65	21.4	19.31	23.9	—	—
,,	,, ...	27.91	22.9	31.90	20.4	26.82	23.1	—	—
,,	1st ratoons	19.33	21.1	—	—	22.07	21.8	—	—
,,	,, ...	22.65	21.9	16.73	20.7	—	—	—	—
,,	,, ...	25.05	22.6	—	—	19.29	22.7	—	—
,,	,, ...	21.10	22.0	20.93	20.9	—	—	—	—
C.	Plant canes	34.49	19.6	—	—	36.32	21.1	—	—
,,	,, ...	41.46	21.3	—	—	37.10	22.4	—	—
,,	,, ...	33.09	22.4	—	—	27.28	23.3	—	—
D.	,, ...	57.13	20.9	—	—	49.93	22.1	51.11	20.1
,,	,, ...	56.36	18.4	—	—	57.47	18.8	—	—
,,	,, ...	57.09	18.9	—	—	—	—	47.10	18.0
,,	,, ...	57.23	22.4	—	—	44.84	22.1	47.92	22.6
,,	,, ...	52.04	23.9	—	—	49.25	23.4	43.71	22.5
,,	,, ...	42.38	22.6	—	—	36.66	22.3	33.15	20.4
,,	1st ratoons	36.16	22.9	—	—	26.52	23.6	24.40	23.2
,,	,, ...	53.98	21.6	—	—	45.03	22.0	—	—
,,	,, ...	54.10	21.3	—	—	—	—	43.13	20.8
,,	2nd ratoons	43.93	23.7	—	—	30.25	23.6	—	—
,,	,, ...	41.70	23.2	—	—	—	—	28.71	22.3
,,	,, ...	39.00	23.3	—	—	25.40	23.8	23.86	23.6

67. B.35245 commercially in Barbados somewhat resembles B.35187 with, however, two important differences, i.e., (1) it ripens earlier and (2) while giving a lower plant cane yield it betters B.35187 in ratoons. In Barbados it is recommended as an early cane to displace B.726 in 20%—35% of the plantings in category D. and 5%—10% in categories B. and C.

68. *B.37161.* So far this seedling has been reaped only as a plant cane in Select Seedling Trials with the results given in Section D. above.

69. As may be seen from these results, B.37161 is outstanding in all ecological categories. Visits have recently been made to these trials to note the growth of ratoons while growth measurements are also being made on ratoons. It is evident from these observations that B.37161 is going to perform as a ratoon at least relatively as well as it has done as a plant cane.

70. Cane tonnages are very high and it is to be observed that the sucrose in cane figures indicate that B.37161 and B.2935 are approximately equal and both somewhat inferior to B.726, B.H.10(12) and B.3013 in this respect. The juice purity of B.37161 is, however, remarkably high: this on account of low figures for glucose in juice.

71. B.37161 is quite evidently a first class general purpose cane. In Barbados it is now recommended for a 90%—95% planting in category A. an 85% planting in categories B. and C. and a 20%—30% planting in category D. In the last mentioned category it is not yet known conclusively how it will compare with B.35187 and B.35245.

72. It is thus seen that only four varieties are recommended for commercial planting in Barbados. These are all new and are recommended to the entire exclusion of the present standards—B.2935, B.H.10(12), B.726, B.3013 and B.3127.

III. A SHORT NOTE ON SPECIAL INVESTIGATIONS.

Growth Measurements.

73. During the season 1939—41, growth measurements were made on the following newer seedlings included in the plant cane maturity experiments:—B.3371, B.37157, B.37161, B.37181. The standard varieties B.H.10(12) (high rainfall district) B.726 (high and low rainfall districts) and B.2935 (low rainfall district) were included and measured for the purposes of growth comparisons.

Gumming Disease Investigations

74. During the season under review a total of 232 seedlings of the B.39′ series were tested at Dodds for their resistance to gumming disease. Of these 98 seedlings were noble canes planted in 24 stool plots, and the remainder nobilisations planted in three stool plots. A summary of the results is given below:—

	No Gumming	Trace	Very slight	*	**	***	****	Total
Noble canes	59	17	8	7	3	3	1	98
Nobilisations	134	—	—	—	—	—	—	134

75. In considering these results it may be noted that the season was a very dry one and even on the highly susceptible variety Ba.11569 there were very few symptoms of gumming disease observed.

Mosaic Disease Resistance Tests

76. Towards the end of the period under review a complete replanting of the mosaic resistance test was made. Of the 178 seedlings which had been included in the old planting 117 were discarded, 39 of these being susceptible to mosaic and 78 apparently resistant. The remaining 61 seedlings were replanted in the new test along with 103 seedlings which had not yet been tested.

77. In last year's report it was mentioned that every third stool of each seedling included in the mosaic disease resistance test, had been planted with healthy material of the susceptible variety B.2935. This was done in order that data might be obtained on the natural spread of mosaic infection within the test. During the period under review approximately 38% of these B.2935 stools became infected.

IV. IMPORTATION OF NEW BREEDING MATERIAL.

A. From the U.S. Department of Agriculture.

78. As a result of correspondence between Dr. E. W. Brandes, Chief of the Division of Sugar Plant Investigations, U.S. Department of Agriculture, and the Cane Breeding Station, a selection of wild canes and first nobilised derivatives of wild canes was made from the material possessed by the Sugar Division of the U.S. Department of Agriculture.

79. In January and March of 1941, the first two consignments of these selections—twelve varieties in all were received after being quarantined at the Plant Quarantine Station in Trinidad and a further eleven are in process of quarantine. These selections are categorised as follows:—

(a) *Saccharum spontaneum.*

(i) Java forms—Glagah Kloet.
Pasoeroean.

(ii) Burma form

(iii) Celebes form.

80. The Burma form is the longest growing season type of the *spontaneums.* It is exceptionally vigorous and in species hybridisation it has given in the United States some very promising seedlings. It was imported from Burma by the U.S. Department of Agriculture in 1935.

81. The Java forms are very vigorous but of shorter growing season than the above. Kassoer, which has already been used in breeding by the Station, is probably a natural hybrid between one of these forms and a noble cane. Both were imported from Java by the U.S. Department of Agriculture in 1929.

The Celebes form is smaller than the others.

All of these forms are immune to mosaic disease.

(b) *Saccharum robustum*

Forms 28 NG. 251
28 NG. 105

82. This is a new species of *Saccharum* discovered in 1928 by an expedition of the U.S. Department of Agriculture to Papua and New Guinea.

83. They are robust types with stalks about the diameter of medium-width noble canes. Their natural habitat is on river banks which are subject to periodic inundation. The stalks are very hard and may reach a height of 25′—30′. They are promising parent varieties. Many hybrids have been ob-

tained in Australia, Hawaii and Florida. The seedlings inherit the vigour of the wild parent and thick stalks of great length. Most of the seedlings are susceptible to mosaic but injury is slight. With the introduction of *spontaneum* blood it should be possible to obtain resistant seedlings with excellent vegetative characteristics.

84. These forms were imported from Papua by the U.S. Department of Agriculture in 1928.

(c) *Erianthus arundinaceus*

Form 28 NG. 7.

85. The natural habitat of this species is in dry situations away from water courses—a valuable character for breeding purposes. The canes are about 1″ in diameter and for the greater part solid. They grow 12′—15′ high. This form has already been used in breeding and although no actual data is available the progenies are considered promising. It was imported from Papua by the U.S. Department of Agriculture in 1928.

(d) *Saccharum officinarum x Saccharum robustum*

86. Thirteen in all have been or will shortly be received by the Station. They comprise first crosses between two forms of *Saccharum robustum* and several noble canes.

(e) *Other derivations.*

87. Under this head, one seedling is a cross between *Erianthus arundinaceus* and a noble cane, while two are derived from P.O.J.2725 crossed with *Saccharum robustum.*

88. All seedlings noted under (d) and (e) are said to be vigorous, large stalked canes resistant to eye spot, brown spot and brown stripe. They were bred at Canal Point, Florida and in Queensland.

B. From Coimbatore, India via Trinidad.

89. In view of the fact that Coimbatore varieties already used as parents by the Station have produced good progenies, an opportunity was taken to import the more promising of the recent varieties grown in Trinidad, i.e. Co.419 and Co.421.

90. These were received in July, 1941 and are already planted out in the field.

V. PERFORMANCES OF SEEDLINGS IN CONTRIBUTING COLONIES.

91. The notes given here are based on reports received from time to time from the contributing colonies. The performances of seedlings in Barbados are noted in Section II while those for Jamaica are noted in Section VI.

Antigua.

92. Seedlings up to the B.34′ series have been tested. Of these, B.2935 is planted on a commercial scale, having displaced the variety B.4507 on the better class low rainfall limestone soils. B.3013, while giving yields in many cases better than B.H.10(12) is being beaten by later seedlings—B.3439 and B.34104. A review of the 1940 and 1941 trial results would indicate that B.3439 and B.34104 will be planted as commercial canes over the greater part of the sugar cane acreage. The cane juice quality figures recorded for B.34104 are extremely high and it is probable that this seedling is the best juice cane in the West Indies. As far as is known, both B.3439 and B.34104 are already being planted on a commercial scale but no exact figures are available. It seems certain, however, that the present standards in Antigua—B.2935, Ba.11569, B.H.10(12), P.O.J.2878, Co.213 are all inferior to the above and will probably be replaced by them.

93. The number of seedlings being received by Antigua is causing the local Department considerable embarrassment but the authorities have very wisely interpolated four smaller plot trials (c.f. second year trials in Barbados) in the testing scheme and this should serve to eliminate obviously inferior seedlings prior to the larger scale variety trials.

94. Promising seedlings now in Antigua which are being given special attention in multiplication are B.35245, B.35187, B.38233 and above all B.37161. It is anticipated that the last named may come to be grown almost throughout the entire sugar cane acreage.

St. Kitts.

95. Of the earlier seedlings sent to St. Kitts, B.2935 entirely replaced the lower rainfall area standards—S.C.12/4 and Ba.11569. Actually, B.2935 occupies fully 50% of the cane acreage.

96. The Station's early policy with regard to St. Kitts was to send noble cane seedlings only for test. Consequently the numbers received have been much less than for the other islands. In view of the successes of nobilisations in Barbados (whose conditions very much resemble St. Kitts) promising nobilised seedlings are now being sent to St. Kitts.

97. The trials reaped in 1940 and 1941 comprised the standards—B.2935 (low rainfall) and B.H.10(12) (high rainfall) and the following seedlings—B.3439, P.O.J.2883, B.3013, B.3127, B.3124, B.3138, B.726. In the lower rainfall area B.3439 is proving superior to B.2935, giving higher cane tonnages as plants and ratoons, better juices, better keeping ability during crop and higher falls of trash. It is certain that B.3439—if it has not already done so—will displace B.2935. In the higher rainfall areas, B.3013 ran close to B.H.10(12) but results are not such as would justify its replacement of the latter. B.3439 more especially in ratoons, was equal to and sometimes better than B.H.10(12) but it is doubtful if it will be grown to any great extent in these areas.

98. The trials laid down for reaping in 1942 are chiefly directed towards getting final figures for comparisions between B.3439 and B.2935 in the lower rainfall areas and one trial at a station in the intermediate rainfall area is designed to test B.35187 for the first time in St. Kitts. Here it is competing with B.H.10(12).

99. The St. Kitts Station has been advised to multiply rapidly the following seedlings recently received for inclusion in the 1941/43 trial:—

(a) for high and intermediate rainfall areas—B.35245 and B.35187.
(b) for low rainfall areas and for wet middle lands, thin soil—B.3337, B.37161.
(c) for test in all areas—B.34104, B.37193.

100. It is highly probable that the present St. Kitts standards—B.2935, B.3439 and B.H. 10(12) will be ousted by some of these newer seedlings.

Grenada.

101. In the more progressive estates the standard varieties now being grown are—B.2935, B.3439 in the lower rainfall areas and B.726, B.H.10(12) and B.3013 in the wetter areas.

102. It is the intention to re-commence variety trials and, acting on the advice contained in a memorandum by the Geneticist of the Station, three trials have been projected for 1941/43 season. These include in addition to the standards the following seedlings:—

(1) dry area—B.34104, B.37161.
(2) intermediate and high rainfall area—B.34104, B.35187, B.37161, B.35245.

St. Lucia.

103. No variety trials are being run in St. Lucia.

104. In future all varieties issued by the Station will be sent to St. Lucia and grown in the Government nursery but only those which have done well in islands where trials are conducted will be rapidly multiplied and liberated to appropriate estates for observation and initial small scale commercial planting. The others will be discarded from the nursery.

St. Vincent.

105. The Acting Commissioner of Agriculture was advised as to the seedlings to import into St. Vincent and methods to adopt in estimating their commercial value.

Trinidad.

106. The progress in seedling testing in Trinidad is presented in Mr. Turner's Summary of Results of Varietal Experiments, 1941 Crop. This is given here.

Summary of Results of Varietal Experiments, 1941.

107. Twenty-nine varieties were included in twenty three experiments on fourteen representative soil types. P.R.803, B.34104 and B.3439 gave the most satisfactory results.

108. *P.R.803.* Larger yields than standard: B.H.10(12) on Tacarigua and Orange Grove silty loams.

109. *B.3439.* Larger yields than standard: B.H.10(12) on Hermitage Suite (shallow phase) *Seville clay, Debe clay, Tarouba clay, Frederick heavy clay,* and the *Washington series,* and than the standard varieties: Co.213 and Uba on Ste. Madeleine clay. B.3439 has not given as good yields as B.H.10(12) on Tacarigua silty loam and the Guaracara series. It has given a better yield than P.R.803 on *Tarouba clay.*

110. *B.34104.* has given larger yields than B.H.10(12) on *Orange Grove silty loam* and the *Pasea series,* and than Co.213 on *Cunupia clay* and the *Spring series* and than Co.213 and Uba on *Ste. Madeleine clay.*

111. *Other Varieties.* The varieties Co.419 and Co.421, which showed promise in 1940, have given smaller yields of sugar than B.3439 and B.34104 in all experiments in which direct comparisons have been made.

112. *B.726* has given good results only on a deep phase of the *Hermitage Suite.* B.2935 appears inferior to B.3439 on a shallow phase and to B.726 on a deep phase of the *Hermitage Suite,* and to B.H.10(12) on the *Guaracara Series.*

113. *P.O.J. 2878* shows promise on a shallow phase of the *Hemitage Suite.* It appears inferior to B.3439 on *Debe* and *Tarouba clays.* P.O.J.2883 in general has given good yields of cane but juice of poor quality.

114. B.3013, B.3124, B.3127, B.3138, B.3234, B.34117, B.34163, F.C.916, Fiji 36, D.66/30, C.P.28/11, C.P.28/19, Co.290, Co.313, Oshima, Kavangire and Merthi in general have given disappointing results.

General Conclusions.

115. P.R.803 (which has the merit of being resistant to froghopper damage) shows promise of replacing B.H.10(12) on some of the more fertile soil types.

116. B.3439 (the reaction of which to froghopper damage is not yet known) and B.34104 (which is susceptible to froghopper damage) show promise of replacing B.H.10(12), Co.213 and Uba on large areas of soil types of intermediate and low fertility.

117. The trials for the 1941/43 crop contain as essential standards B.H.10(12), Co.213. The promising seedlings—B.3439, B.34104 are included in the majority of the trials. In addition, hardy seedlings of the B.35′ series and seedlings of the B.37′ series are to be tested. A few trials contain Co's 421, 419, 432 and P.R.803, F.C.916.

VI. SUMMARY OF A VISIT TO JAMAICA.

118. In October, 1940 the Geneticist visited Jamaica to note the progress made with seedlings already received in Jamaica and to make recommendations for future tests. Details of the visit have been published in Bulletin No. 22 of the Station. The salient points are considered here.

119. The mosaic disease situation is very complicated. The disease is present throughout the island although its virulence varies from place to place. Thus, at Hope Gardens it is exceedingly virulent, so much so that reputed resistant varieties such as P.O.J.2878 are there comparatively susceptible while at Cow Park nursery, about eight miles from Hope, the incidence and effect of the disease are slight. It appears, moreover, that there are at least three distinct strains of mosaic in Jamaica, differing in their distribution, symptoms and effect and in their choice of host varieties. Following on from these observations several conclusions are made, i.e. (1) the mosaic disease variety resistance tests conducted in Barbados have little value for Jamaica, and Jamaica will have to test the mosaic reaction status of varieties sent them and (2) these reactions will have to be determined for each sugar cane area. Arrangements have since been made to carry out these tests as a routine in the seedling multiplication and testing work.

120. Up to the time of the writer's visit, sixty-three seedlings had been received by Jamaica from the Station. The first batch arrived in 1936 and comprised seven noble canes. Of this lot B.3439 gives appreciable promise and in parts is already being planted on a commercial scale. Although a noble cane, it is showing a surprisingly high degree of resistance to mosaic disease and in addition, in four plant cane trials reaped in 1940, it yielded appreciably higher amounts of sugar per acre than the standard—B.H.10(12). No results of the 1941 trials have yet been received, but it is highly probable that B.3439 will replace large areas of P.O.J.2878 and even B.H.10(12).

121. The second batch of seedlings was received in 1937 and comprised ten nobilisations. Of this lot B.34104 proved to be outstanding, making remarkable growth as a plant and a ratoon. Unfortunately, it is highly susceptible to mosaic disease and it is probable that it will become a commercial cane only in areas where mosaic incidence is slight. Recent information received would suggest that although very susceptible, it would appear to be tolerant and many estates intend planting it on a commercial scale.

122. The third batch of seedlings was received in 1939 comprising eleven noble canes and thirty nobilisations. Recommendations were made to discard five of the noble canes and five nobilisations and to multiply the others and include them in mosaic resistance tests. Promising seedlings in this batch are:—B.3254, B.35187, B.35245, B.37161, B.37193.

123. The most recent batch was received in 1940 and comprised four nobilised seedlings.

124. A scheme for testing seedlings received was submitted. This comprised in succession in time (a) a nursery stage where seedlings received in a batch are treated as a unit, multiplied and given uniform treatment, so that

obviously inferior ones may safely be discarded (b) a mosaic resistance test at Hope Gardens conducted on lines similar to those in Barbados (c) estate observation plots comparable to the scheme recently adopted by the Sugar Cane Investigation Committee in Trinidad and (d) variety trials.

125. Since writing the Report, the scheme in broad outlines has been adopted. With regard to mosaic testing, however, it has been shown that mosaic infestation at Hope Gardens is extremely severe and is not indicative for the sugar areas in the island. Accordingly, it has now been decided to test for reaction to mosaic at the estate observation plot stage.

126. At the annual meeting of the Jamaica Association of Sugar Cane Technologists, following the presentation of a paper by the Geneticist of the Central Sugar Cane Breeding Station, a Varieties Sub-Committee was formed comprising Mr. Goodman, of the Department of Agriculture, and several planters. The duties of this Committee will consist in allocating varieties from the nursery stage to the estate observation and mosaic testing stage and from these to decide on the varieties for promotion to variety trials.

127. Finally, a series of variety trials for season 1940/42 was submitted.

VII. DESPATCH OF SEEDLINGS TO THE PLANT QUARANTINE STATION.

128. During 1940, twenty-nine seedlings were sent to the Plant Quarantine Station. Of these, fifteen are nobilisations of the B.38′ series, the most promising being B.38209, B.38192, B.38233. Twelve are noble canes of the B.37′ series and two—B.35187 and B.35245 were re-sent for quarantine for Trinidad, which colony by some oversight did not receive them when originally distributed.

129. Recently, with further information obtained in Barbados for the noble canes of the B.37 ′series noted above, all colonies were advised to discard them all, prior to multiplication, since none is considered likely to become commercial canes.

130. Twenty-one seedlings of the B.39′ series—all of them nobilisations—will be sent to the Plant Quarantine Station in September, 1941. Of this lot, B.39200 is especially promising as a general purpose cane.

VIII. STATEMENT OF EXPENDITURE FOR 1940-41.

		£	s.	d.
1.	Personal Emoluments	1,097	18	5
2.	Provident Fund	40	0	0
3.	Seedling Trials	443	0	5
4.	Stationery and Library	34	11	8
5.	Travelling	345	7	0
6.	Incidentals	21	4	10
7.	Capital	288	19	1
	Total	2,271	1	5

APPENDIX I

SUGAR CANE BREEDING, SEEDLING RAISING AND FIELD NURSERY PLANTING, 1940-41. B.43′ SERIES

Details of Crosses made, their Germinations, Numbers Potted and Numbers Planted in Field Nursery.

Cross	Group	No. Germinations Nov. 1940 Jan. 1941	No. Potted Jan-Feb. 1941	No. Planted in field Nursery
	S. spontaneum x S. officinarum			
B.3371 x B.603	Glagah 4th nobilisation	54	52	45
B.3439 x B.35187	,, 6th ,,	3	0	0
B.3439 x B.39150	Dacca 2nd ,,	45	32	32
		102	84	77
	S. spontaneum x S. spontaneum			
B.34102 x B.3337	Glagah x Glagah	415	389	300
B.3353 x ,, ...	,, x ,, ...	249	234	234
B.3354 x ,, ...	,, x ,, ...	221	209	206
B.34182 x B.39262	,, x Local	102	91	60
B.34102 x B.39267	,, x ,, ...	190	183	110
B.3013 x B.38277	,, x ,, ...	83	77	50
B.3439 x B.38279	,, x ,, ...	63	58	50
,, x B.38283	,, x ,, ...	72	58	50
,, x B.38284	,, x ,, ...	22	0	0
B.35247 x P.O.J.2878	,, x Celebes	1,281	949	921
B.37227 x ,, ...	,, x ,, ...	516	437	400
B.35197 x ,,	,, x ,, ...	578	389	350
B.37227 x B.3337	,, x ,, ...	348	348	301
B.35247 x ,, ...	,, x ,, ...	1,316	634	610
B.35197 x B.38280	,, x Local	1,605	410	300
,, x B.38281 ...	,, x ,, ...	1,307	571	300
,, x B.38282	,, x ,, ...	1,088	383	300
,, x B.38285	,, x ,, ...	1,016	458	300
,, x B.38286	,, x ,, ...	26	0	0
		10,498	5,878	4,842

APPENDIX I—*Continued*

Cross		Group	No. Germinations Nov. 1940 Jan. 1941	No. Potted Jan-Feb. 1941	No planted in field nursery
		S. spontaneum x S. barberi			
Co.213	x P.O.J.2878	Glagah x Chunnee	26	21	19
B.3365	x ,, ...	,, x ,, ...	568	413	400
B.37161	x ,, ...	,, x ,, ...	55	54	49
B.37194	x ,, ...	,, x ,, ...	2	0	0
B.35206	x ,, ...	,, x ,, ...	428	377	310
Co.213	x B.3337	,, x ,, ...	15	14	14
B.37157	x ,, ...	,, x ,, ...	20	0	0
B.3365	x B.39281	,, x ,, ...	30	25	25
B.3353	x J.O.J.234	,, x ,, ...	92	92	86
B.3354	x ,, ...	,, x ,, ...	94	94	91
B.39253	x ,, ...	,, x ,, ...	176	176	174
B.39283	x ,, ...	,, x ,, ...	5	0	0
B.34102	x ,, ...	,, x ,, ...	377	335	328
Ba.11569	x B.37176	,, x ,, ...	1	0	0
B.3439	x B.37175	,, x ,, ...	1,614	1,243	1,020
B.37174	x Q.813	,, x ,, ...	0	0	0
B.37162	x P.O.J.234	Celebes x Chunnee	107	91	80
B.37227	x ,, ...	,, x ,, ...	92	70	68
Co.213	x B.39274	,, x ,, ...	3	0	0
B.3365	x ,, ...	,, x ,, ...	3,160	1,066	590
B.3365	x B.39245	Local x Chunnee	51	40	40
			6,916	4,111	3,294
B.35207	x B.H.10(12)	*S. barberi x S. officinarum*			
B.35207	x B.H.10(12)	Chunnee 4th nobilisation	2	0	0
B.35206	x B.2935		240	226	200
			242	226	200
		S. spontaneum x S. sinense			
B.37273	x P.O.J.2878	Glagah x S. sinense	0	0	0
B.37226	x ,, ...	,, x ,, ...	149	132	132
B.39254	x B.3337	,, x ,, ...	27	20	16
B.3353	x B.35272	,, x ,, ...	183	178	160
B.34102	x B.35275	,, x ,, ...	234	212	150
B.3354	x B.37224	,, x ,, ...	47	47	42
B.35197	x B.35269	Celebes x S. sinense	0	0	0
B.35247	x ,, ...	,, x ,, ...	1,060	595	410
			1,700	1,184	910

APPENDIX I—*Continued*

Cross	Group	No. Germinations Nov. 1940 Jan. 1941	No. Potted Jan-Feb. 1941	No. Planted in field Nursery
	S. barberi x S. spontaneum x S. sinense			
B.3365 x B.37261	Chunnee x Glagah x S. sinense	261	246	200
B.37263 x P.O.J.234	„ x „ x „	17	17	17
		278	263	217
	Co.281			
B.3274 x B.34107	Co.281 x Glagah ...	4,580	604	500
B.34102 x B.34104 ...	„ x „ ...	421	421	395
B.3354 x B.34116 ...	„ x „	728	701	300
B.34117 x P.O.J.2878	„ x „	983	664	300
Co.281 x B.2935	Co.281 x S. Officinarum	194	183	118
Co.281 x B.H.10(12)	„ x „	0	0	0
B.38276 x Co.281	„ x Glagah x S. sinense	1,081	579	510
B.37263 x Co.281	„ x „ x „	0	0	0
B.35197 x Co.281	„ x Celebes	2,794	1,100	981
B.35197 x B.34104 ...	„ x „	5,042	1,074	998
B.3365 x B.34104	„ x Chunnee	2,266	2,009	1,987
B.34117 x P.O.J.234	„ x Glagah x Chunnee	393	366	310
		18,482	7,701	6,399
	Co.290			
B.3439 x Co.290	Co.290 x S. officinarum	86	86	77
B.35218 x B.3899	„ x „	40	38	37
B.35218 x B.603	„ x „	19	0	0
B.3172 x Co.290 ...	„ x Glagah	0	0	0
B.34102 x „	„ x „	128	128	122
M.D.47 x „	„ x „	425	417	404
B.3353 x „	„ x „	99	96	96
B.3354 x „ ...	„ x „	204	195	187
B.35218 x P.O.J.2878	„ x „	458	335	299
		1,459	1,295	1,222
	Grand Totals	23,043	20,742	17,161

APPENDIX II

SUGAR CANE FIRST YEAR SEEDLINGS—B.42' SERIES.

List of Crosses and their numbers of seedlings planted in the Field Nursery (April/May, 1940) and the First Year Seedling Trial (October/November, 1940)

Cross	Group	Number in field Nursery	No. planted in First Year Seedling Trial
	Noble S. officinarum		
B.3013 x B.2935		375	225
B.3521 x B.2935		520	212
		895	437
	S. spontaneum Java (i) 3rd nobilisation		
B.38272 x B.H.10(12)		173	100
B.38274 x „		9	6
		182	106
	„ (ii) 4th nobilisation		
B.3013 x P.O.J.2878	....	630	432
B.3439 x „	....	2,231	1,402
B.(30) L6 x B.H.10(12)	....	418	150
„ x B.2935	....	411	150
B.3354 x B.H.10(12	....	71	57
„ x B.2935	....	25	18
B.3353 x B.417	....	23	18
„ x B.3899	....	57	46
„ x B.2935	....	120	107
„ x B.H.10(12)	....	333	241
		4,319	2,621
	„ (iii) 5th nobilisation		
B.34102 x B.2935		768	593
„ x Ba.6032		217	167
		985	760
	S. spontaneum Celebes. 3rd nobilisation		
B.35197 x B.2935	....	156	92
B.35204 x „	....	1,133	508
„ x B603	....	930	398
B.35247 x B.2935	....	27	19
		2,246	1,017

Cross		Group	Number in field Nursery	No. planted in First Year Seedling Trial
		S. barberi		
B.3013	x B.35245	(i) 3rd nobilisation	399	151
B.37161	x B.3899	(ii) 4th nobilisation	36	30
„	x B.2935		14	10
			50	40
		S. Spontaneum x S. Spontaneum		
B.3172	xB.37254	Glagah x Local	29	20
Ba.11569	x B.38283	....	22	20
B.3013	x B.38279	....	132	80
B.34102	x B.38285	....	300	189
B.3013	x B.38280	....	293	200
			776	509
		S. Spontaneum x S. Sinense		
B.3353	x B.37261	Glagah x Uba derivatives	102	87
B.35271	x P.O.J.2878	....	50	40
B.3172	x B.35269	....	20	14
			172	141
		Co.281 x Glagah		
P.O.J.2725	x B.34116	....	834	448
M.D.47	x Co.281	....	541	294
			1,375	742
		Co. 213 x Glagah		
Co.213	x P.O.J.2878	....	95	82
		Co.290		
B.3439	x Co.290	....	641	492
B.3365	x „	....	1,301	1,069
B.35197	x „	....	1,000	674
B.35218	x P.O.J.2878	....	455	300
			3,397	2,535
		Miscellaneous		
P.O.J.2725	x B.35245	....	690	433
B.3365	x P.O.J.2878	....	240	166
B.3365	x B.35269	....	9	5
B.35197	x B.35245	....	34	25
B.3354	x C.P.28/11	....	1,503	499
B.3353	x C.P.28/19	....	130	75
B.37161	xB.37261	....	73	54
			2,679	1,257
		Grand Totals	17,570	10,398